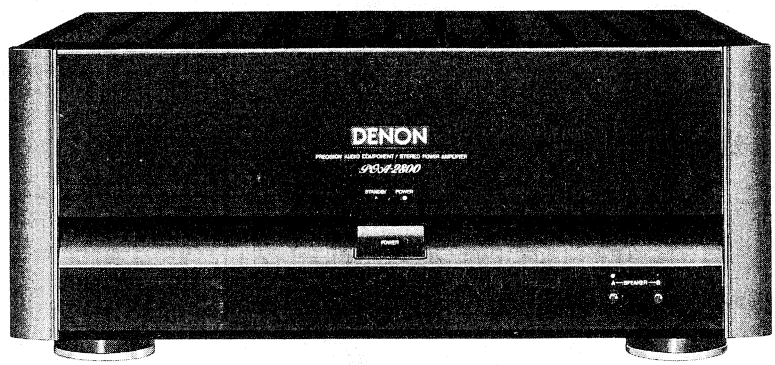
DENON

Hi-Fi Component

SERVICE MANUAL

MODEL POA-2800

STEREO POWER AMPLIFIER



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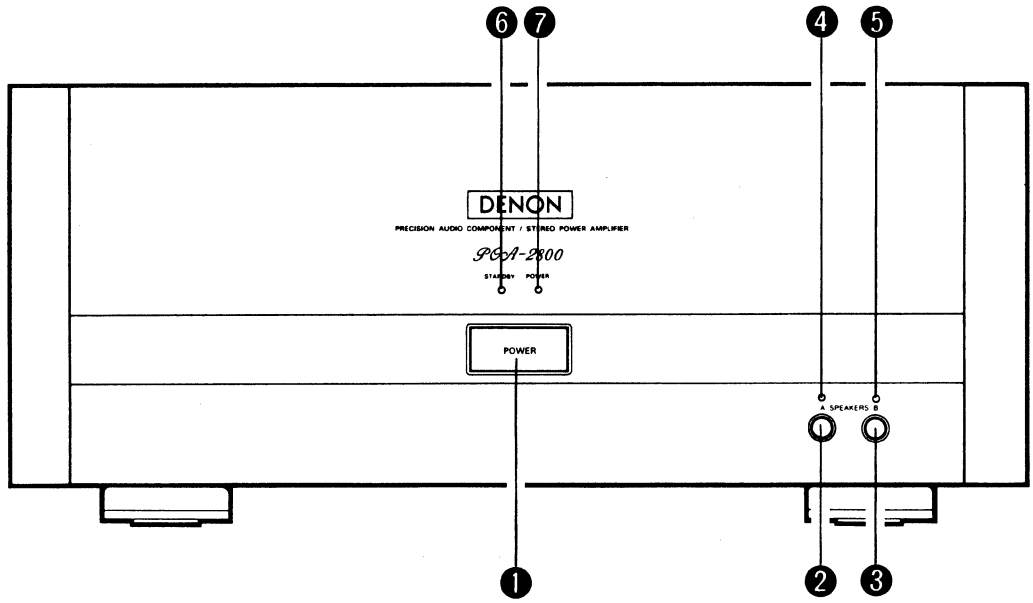
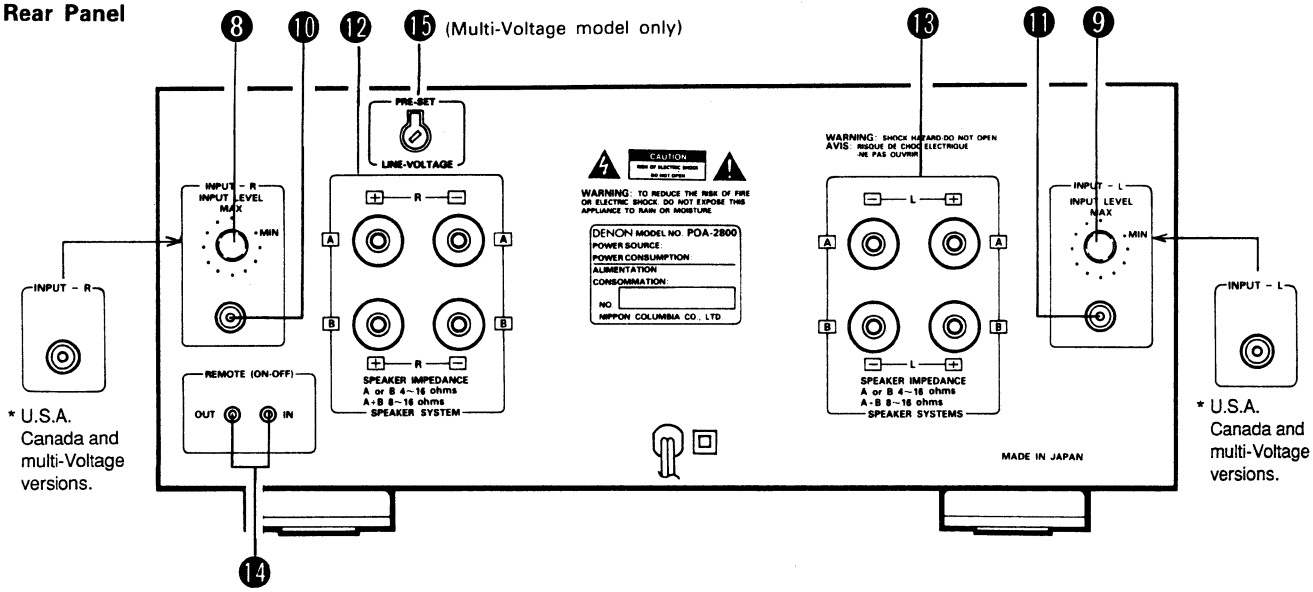
NIPPON COLUMBIA CO., LTD.

NAMES AND FUNCTIONS OF THE PARTS

Front Panel



Rear Panel



❶ POWER (Power switch)
Pressing this switch causes the POWER indicator ❼ to light and the power to be switched on. The muting circuit will operate for several seconds to prevent the noise that arises when the power is switched on, then the amplifier will enter the normal operating condition.
Connecting the output of a DENON component equipped with a REMOTE output to REMOTE input of the rear panel in this condition (using the remote cable supplied with this amplifier) will allow the operating condition of the amplifier to be switched to standby or normal operation, synchronized with the power on/off state of the component at the other side. Pressing the POWER switch once again will cause the indicator to go off and the power to be switched off.

❷ SPEAKERS-A (Speakers A Switch)
Press this switch (indicator ❹ lights) to listen to sound through the speakers connected to the SPEAKERS-A terminals.

❸ SPEAKERS-B (Speakers B Switch)
Press this switch (indicator ❺ lights) to listen to sound through the speakers connected to the SPEAKERS-B terminals.

❹ SPEAKERS-A INDICATOR

❺ SPEAKERS-B INDICATOR

⑥ **STANDBY (Standby indicator)**
This indicator lights up (orange) to indicate the standby condition when the power is switched off with the component of the other side which is connected with the remote cable.

⑦ **POWER INDICATOR**
This indicator lights when the power is turned on, and flashes in the following cases:
- While the muting circuit is activated (for several seconds) when the power is turned on.
- When there is a problem with the set.
  Refer to Page 6.

> **NOTE:**
> - When you will be away for a long period such as when on a trip, set the POWER switch of this amplifier to the off position, rather than use the standby condition.

⑧ **RIGHT CHANNEL INPUT VOLUME**
Only provided for versions other than U.S.A. Canada and multi-voltage versions.

⑨ **LEFT CHANNEL INPUT VOLUME**
Only provided for versions other than U.S.A. Canada and multi-voltage versions.

⑩ **R-ch INPUT (Right Channel Input Jacks)**
Connect the right channel output cord of a preamplifier. Use connection cables equipped with RCA pin-plugs.

⑪ **L-ch INPUT (Left Channel Input Jacks)**
Connect the left channel output cord of a preamplifier. Use connection cables equipped with RCA pin-plugs.

⑫ **R-ch SPEAKER SYSTEMS (Right Channel Speaker Terminal)**
Two pairs of right channel speakers, A and B, can be connected to these terminals.

⑬ **L-ch SPEAKER SYSTEMS (Left Channel Speaker Terminal)**
Two pairs of left channel speakers, A and B, can be connected to these terminals.

⑭ **REMOTE ON/OFF**
This terminal is for the remote power switch. The power amp's power can be turned "on" and "off" by connecting the remote plug cord to the DC output terminal of the preamp (PRA-1500, etc.) and using the power switch on the preamp.
Connect to the IN terminal when using a pre-amplifier. When the OUT terminal is connected to the IN terminal of another power amplifier (the terminal is an input terminal if nothing is indicated), several power amplifiers can be controlled on a single pre-amplifier.

⑮ **LINE VOLTAGE**
(For Multi-Voltage model only)
Refer to Page 4.

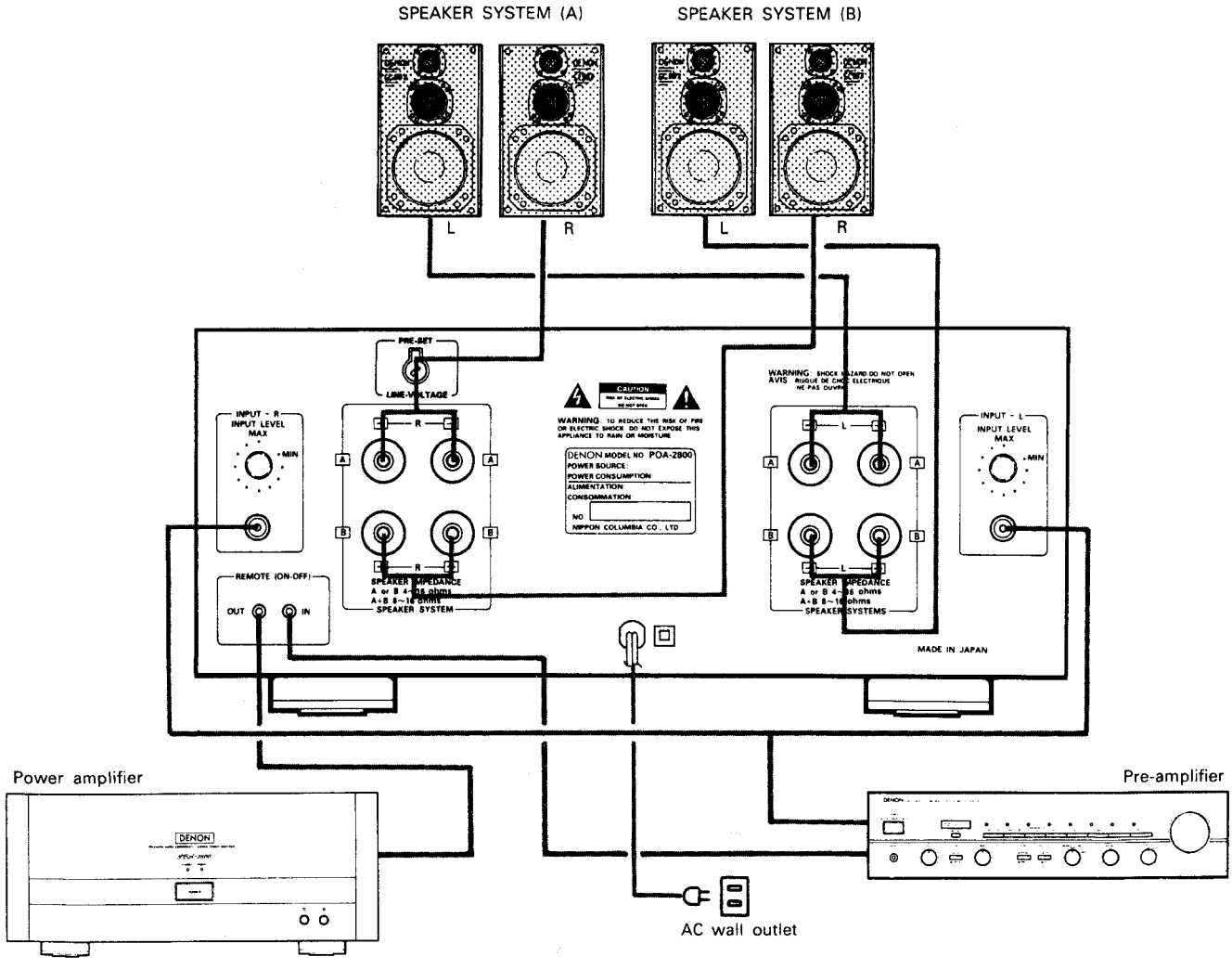
> - For connections, refer to Page 4.

CONNECTIONS

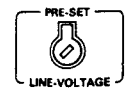
- **Notes on Connection**
  - Do not connect the power cord to the AC wall outlet until all connections have been completed.
  - Make sure channels are correctly connected. Connect Left channels to Left channels and Right channels to Right channels. Follow the color markings of plugs and terminals to make sure mistakes are not made.
  - Connect all pin-plugs securely, pushing them completely into the jacks. Incomplete connections will cause noise generation.
  - Binding the connection cables to power cords, or running such cables close to power supply transformers will cause humming or noise, and should thus be avoided.

- **Connecting the Speakers**

Connect the speaker for the left channel (the left side as viewed facing the front) to the L SPEAKER SYSTEM terminals on the back panel, and the speaker for the right channel to the R SPEAKER SYSTEM terminals.
Two speaker systems may be connected; one pair to the system A terminals and the other pair to the system B terminals.



- **LINE VOLTAGE (Voltage select switch) . . . For Multi-voltage model only.**
  - * The desired voltage may be set with the VOLTAGE SELECTOR KNOB on the back panel using a screw driver.
  - * Do not twist the VOLTAGE SELECTOR KNOB with excessive force. It may be damaged.
  - * If the voltage select switch does not turn smoothly, see qualified serviceman.



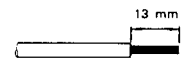
- **Notes on Speaker Connections**
  - Observe the correct polarity of the terminals: connect (–) leads to (–) terminals and (+) leads to (+) terminals. If the polarity is incorrect the sound image will be distorted, with the positions of musical instruments being unclear and impaired stereo imaging.
  - When connecting the speaker cords, be sure the strands of the center wire do not protrude and contact other terminals or other bared speaker leads.
- **Speaker Impedance**
  - If the A and B speaker systems are not to be used simultaneously, the speakers that are to be connected should have a nominal impedance of 4 to 16 ohms.
  - If two speaker pairs (A + B) will be driven simultaneously, use of speakers whose impedance rating is outside the range of 8 to 16 ohms will result in malfunction. Thus, be sure the speaker impedance is correct.

Models for the U.S.A. and Canada only

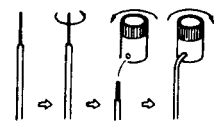
WARNING!

This amplifier produces a large power output at the speaker terminals, which means that a dangerous amount of energy is generated and that there is the danger of electric shock. Please perform the speaker cord connections correctly so that there is no bare wire at the amplifier or speaker terminals (Making connections that differ from the specified method may give rise to a shock hazard).

1) For the speaker connection cord, use a cord made with noncombustible insulating material and a cord of SPT-1 type, or one with higher flexibility.
2) Remove the insulation from the speaker connection as shown in the diagram.

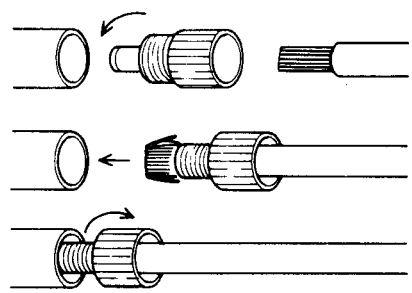


3) Twist the end of the cord that has been prepared according to the previous step so that the strands do not fan out and insert it deep into the cord insertion hole on the side of the speaker terminal, then tighten the knob. At this time, the bare wire section of the cord must not be exposed from the hole. (In other words, the insulated portion of the cord must enter at least 1.6 mm into the hole.).



4) With connection cords that have a diameter larger then the terminal hole (4.4 mm), the bare wire portion will be exposed beyond the hole. Follow the instructions for extra-large cords.

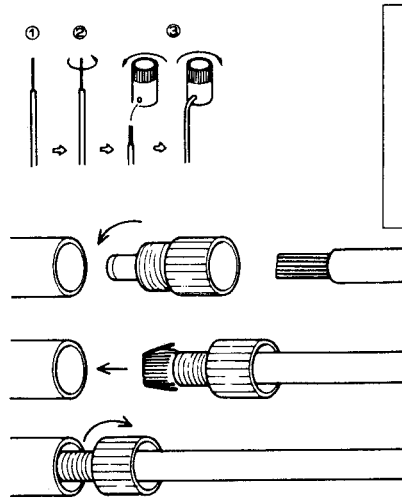
- **For extra-large cords**
  1. Remove the insulation from the end of each cord.
  2. Loosen and remove the end of the speaker terminal.
  3. Insert the center wire through this piece and fold back the speaker wire.
  4. Reinsert the piece into the terminal and turn clockwise to tighten it.



Note:
Each speaker terminal is fitted with a knob that separates from the terminal. Be careful not to lose these knobs and always be sure the correct polarity is observed when connecting them. Follow the directions on the rear panel.

Models for destinations other than U.S.A. and Canada

- **For regular speaker cords**
  1. Remove the insulation from the end of each cord.
  2. Twist the center wire.
  3. Turn the speaker terminal counter-clockwise to open it, insert the twisted center wire into the terminal hole, and turn the terminal clockwise to hold the wire in place.
- **For extra-large cords**
  1. Remove the insulation from the end of each cord.
  2. Loosen and remove the end of the speaker terminal.
  3. Insert the center wire through this piece and fold back the speaker wire.
  4. Reinsert the piece into the terminal and turn clockwise to tighten it.

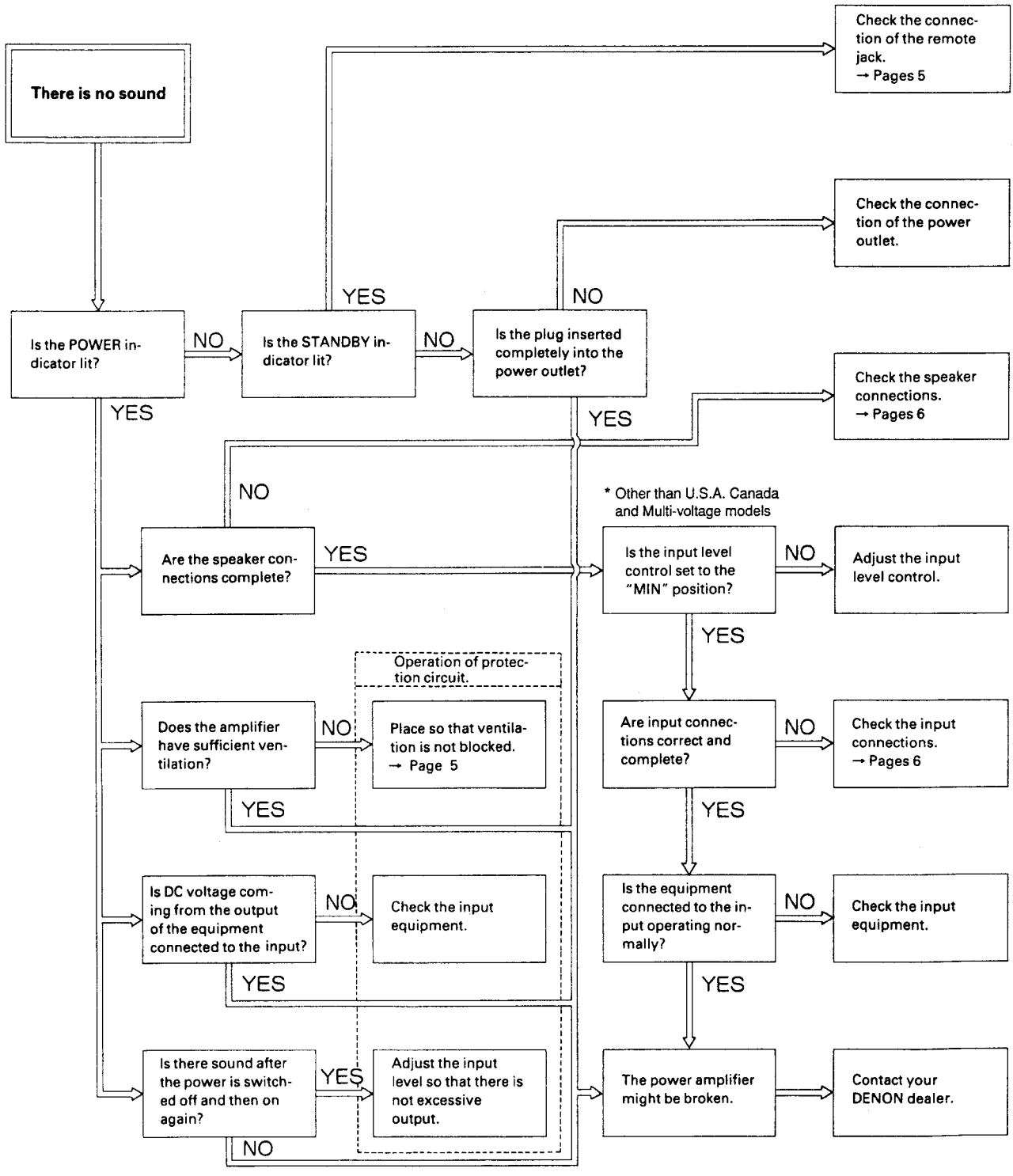


Note:
Each speaker terminal is fitted with a knob that separates from the terminal. Be careful not to lose these knobs and always be sure the correct polarity is observed when connecting them. Follow the directions on the rear panel.

TROUBLESHOOTING

1. Have all connections been made PROPERLY?
2. Have you followed all operational instructions correctly?
3. Check speaker and the preamplifier systems for proper operation.

When your unit does not seem to be operating correctly, first check the items in the following table. If the symptom does not correspond to any of the problems as shown below, turn off the power sources immediately and contact your DENON dealer.


There is no sound
Check the connection of the remote jack. → Pages 5
Check the connection of the power outlet.
Is the POWER indicator lit?
NO
Is the STANDBY indicator lit?
NO
Is the plug inserted completely into the power outlet?
YES
YES
NO
YES
NO
Check the speaker connections. → Pages 6
* Other than U.S.A. Canada and Multi-voltage models
Are the speaker connections complete?
YES
Is the input level control set to the "MIN" position?
NO
Adjust the input level control.
YES
Operation of protection circuit.
Does the amplifier have sufficient ventilation?
NO
Place so that ventilation is not blocked. → Page 5
Are input connections correct and complete?
NO
Check the input connections. → Pages 6
YES
YES
Is DC voltage coming from the output of the equipment connected to the input?
NO
Check the input equipment.
Is the equipment connected to the input operating normally?
NO
Check the input equipment.
YES
YES
Is there sound after the power is switched off and then on again?
YES
Adjust the input level so that there is not excessive output.
The power amplifier might be broken.
Contact your DENON dealer.
NO

SPECIFICATIONS

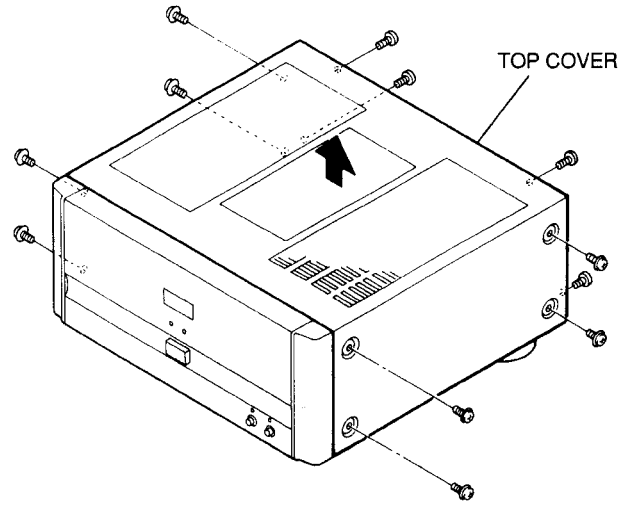
Rated output power:	200 W + 200 W min. RMS into 8 ohms from 20 Hz to 20 kHz with no more than 0.01% total harmonic distortion 350 W + 350 W (4 ohms, DIN 1 kHz)
Total harmonic distortion:	Less than 0.002% (–3 dB at rated output, 8 ohms)
Intermodulation distortion:	Less than 0.002% (60 Hz/7 kHz: 4/1 at rated output 8 ohms)
Power band width:	5 Hz – 80 kHz (8 ohms, THD 0.03%)
Frequency response:	1 Hz – 150 kHz +0, –3 dB (at 1 W)
Input sensitivity:	1 V
Input impedance:	25 k ohms
Output impedance:	0.1 ohm (1 kHz)
S/N ratio:	123 dB (IHF, A-weighting)
Output terminals:	Speakers A or B 4~16 ohms A + B 8~16 ohms AC220V/50Hz (for Europe model)
Power supply:	AC 240 V/50 Hz (for U.K. and Australia model) AC 120 V/60 Hz (for U.S.A. and canada model) AC 110/120/220/240 V 50/60 Hz (for multi-voltage model)
Power consumption:	500W (IEC) 9 A (for U.S.A. and canada model) 415 W (for multi-voltage model)
Dimensions:	434 (W) × 186 (H) × 417 (D) mm (17-3/32") × (7-21/64") × (16-13/32") (Including control knobs and feet)
Weight:	18 kg (39 lbs 12 oz)

* Specifications and design are subject to change without notice for the purpose of improvement.

DISASSEMBLY INSTRUCTION

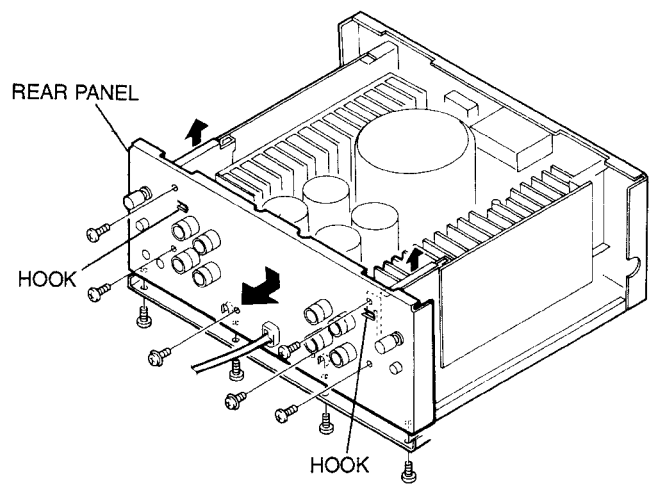
1. Top Cover

Remove 8 screws from the both sides, 4 screws from the rear side and, detach the Top Cover in the direction arrow shows.



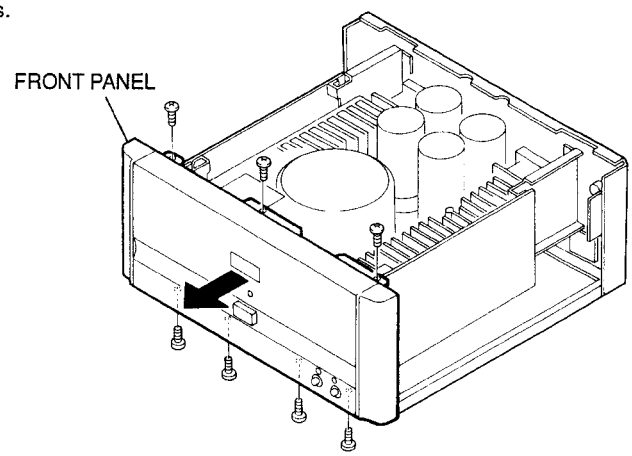
2. Rear Panel

1) Remove 4 screws from the bottom, 6 screws from the rear side.
2) Detach the Rear Panel in the direction as arrow shows with removing 2 hooks.

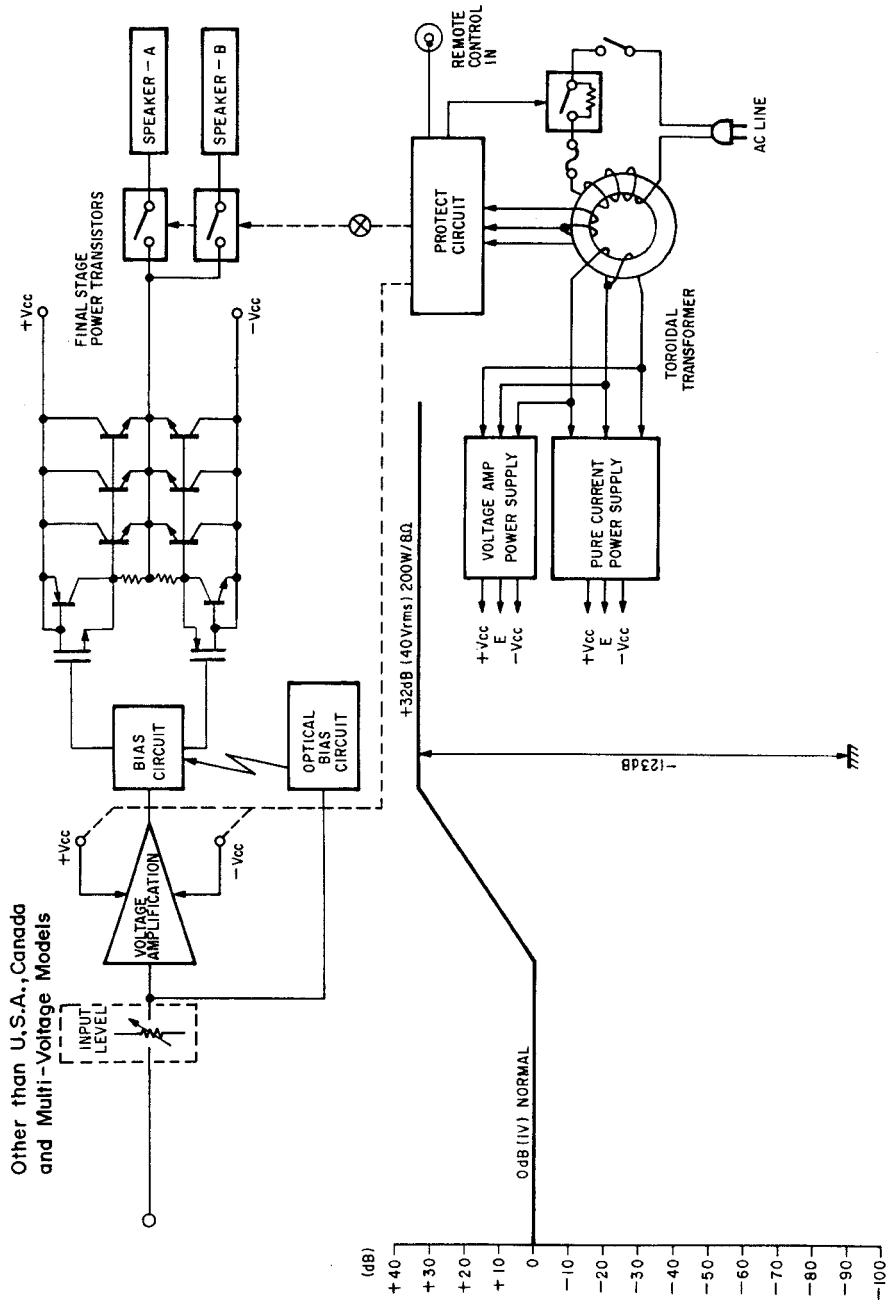


3. Front Panel

Unfasten 4 screws from the bottom, 3 screws from the top, and dismantle the Front Panel in the direction arrow shows.



BLOCK DIAGRAM



METHOD OF ADJUSTMENTS

IDLE CURRENT ADJUSTMENT

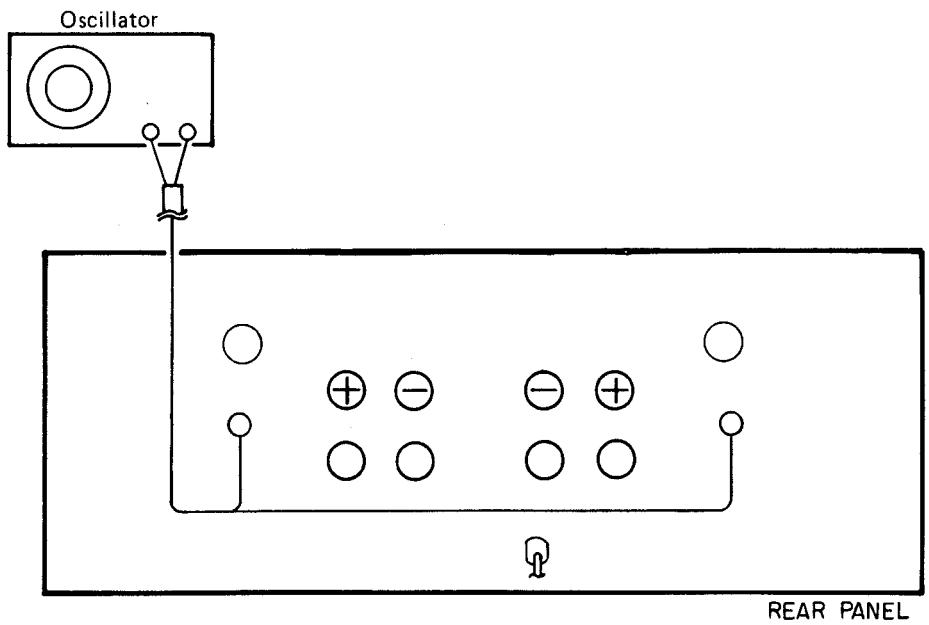
● **Setup**

1. Keep the unit away from direct wind blown by an air-conditioner and an electric fan, and keep the unit under normal conditions. Adjust the range of ambient temperature to 15–30°C.
2. Set the following switches as follows:

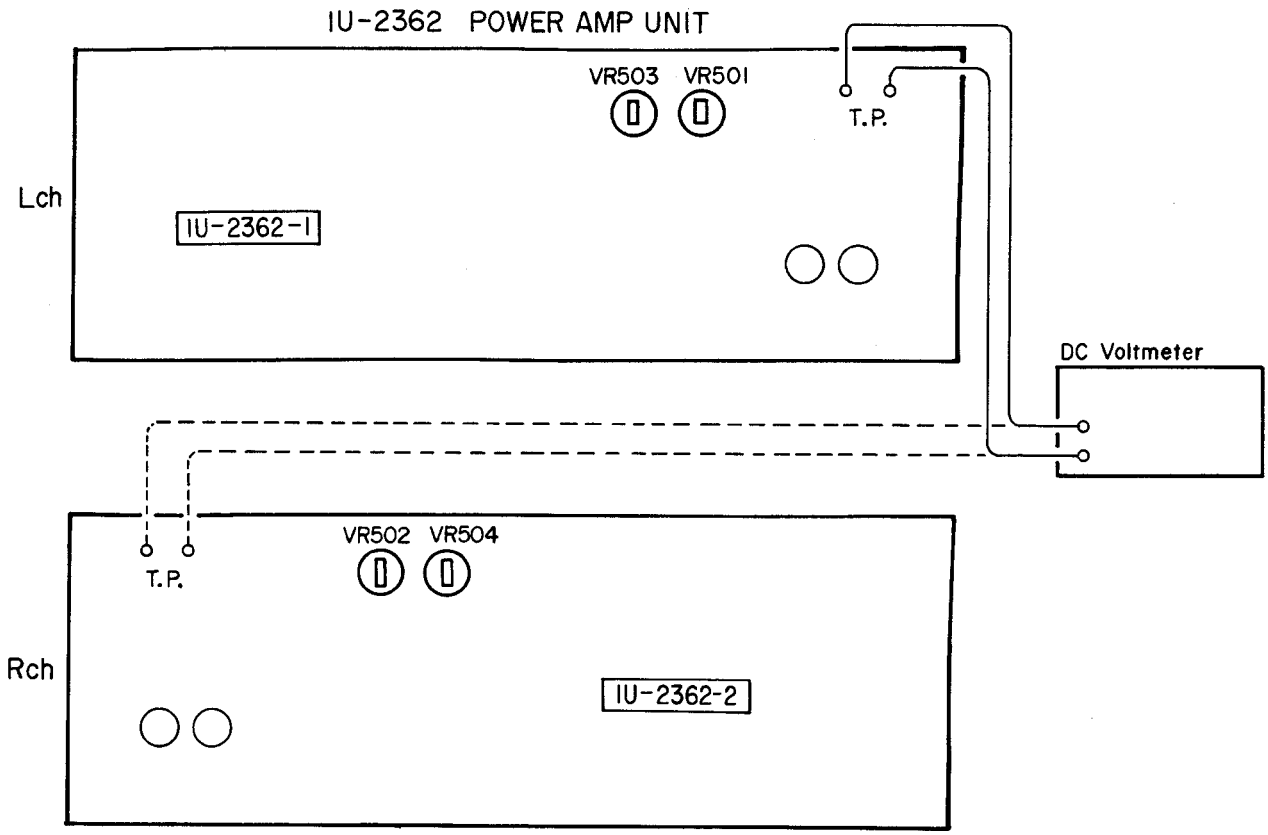
    - POWER (Power switch) to off.
    - INPUT LEVEL (level control) to MIN. (↶)
    - SPEAKERS (Speaker terminal) to no load (Speakers disconnected)

● **Adjustment**

1. Connect DC Voltmeter to Test Points (T.P) of 1U-2362
2. Turn Power Switch "ON".
3. Adjust VR501 (L ch) andVR502 (R ch) so that the DC Voltmeter reads 3±0.5mV.
4. Then after 3 minutes warmup, readjust VR501 and VR502 so that the DC Voltmeter reads 5±1mV.
5. Set the Oscillator frequency at 1 kHz, and Output Level at 50mV, then connect input Terminal.
6. Set INPUT LEVEL VOLUME MAX. (↷)
7. Confirm that the DC Voltmeter connected to the T.P. becomes slightly greater value, than adjust the VR503 and VR504 to obtain 40±5mV on the meter.
8. After 10 minutes, readjust the VR503 and VR504 for 40±5mV.



ALIGNMENT POINTS
1U-2362 POWER UNIT



NOTE FOR PARTS LIST

- Part indicated with the mark " ⊙ " are not always in stock and possibly to take a long period of time for supplying, or in some case supplying of part may be refused.
- When ordering of part, clearly indicate "1" and "I" (i) to avoid mis-supplying.
- Ordering part without stating its part number can not be supplied.
- Part indicated with the mark "★" is not illustrated in the exploded view.
- Not including Carbon Film ±5%, 1/4W Type in the P.W.Board parts list. (Refer to the Schematic Diagram for those parts.)

WARNING:

Parts marked with this symbol ⚠ ▒▒ have critical characteristics.
Use ONLY replacement parts recommended by the manufacturer.

• Resistors

Ex.: RN (Type) 14K (Shape and performance) 2E (Power) 182 (Resistance) G (Allowable error) FR (Others)

RD : Carbon RC : Composition RS : Metallic film RW : Winding RN : Metal film RK : Metal mixture	2B : 1/8W 2E : 1/4W 2H : 1/2W 3A : 1W 3D : 2W 3F : 3W 3H : 5W	F : ±1% G : ±2% J : ±5% K : ±10% M : ±20%	P : Pulse-resistant type NL : Low noise type NB : Non-burning type FR : Fuse resistor F : Lead wire forming

Resistance
1 8 2 ⇨ 1800Ω = 1.8kΩ
- 2 : Indicates number of zeros after effective number
- 18 : 2-digit effective number, decimal point indicated by R.
- Units: Ω

• Capacitors

Ex.: CE (Type) 04W (Shape and performance) 1H (Dielectric strength) 2R2 (Capacity) M (Allowable error) BP (Others)

CE : Aluminum foil electrolyte CA : Aluminum solid electrolyte CS : Tantalum electrolyte CQ : Film CK : Ceramic CC : Ceramic CP : Oil CM : Mica CF : Metallized CH : Metallized	0J : 6.3V 1A : 10V 1C : 16V 1E : 25V 1V : 35V 1H : 50V 2A : 100V 2B : 125V 2C : 160V 2D : 200V 2E : 250V 2H : 500V 2J : 630V	F : ±1% G : ±2% J : ±5% K : ±10% M : ±20% Z : +80% −20% P : +100% −0% C : ±0.25pF D : ±0.5pF = : Others	HS : High stability type BP : Non-polar type HR : Ripple-resistant type DL : For charge and discharge HF : For assuring high frequency U : UL part C : CSA part W : UL-CSA type F : Lead wire forming

Capacity
2 R 2 ⇨ 2.2μF
- 2 : 1-digit effective number, decimal point indicated by R.
- 2R2 : 2-digit effective number, decimal point indicated by R.
- Units: μF, (for P, pF (μμF)
- When the dielectric strength is indicated in AC, "AC" is included after the dielectric strength value.

PARTS LIST OF P.W. BOARD
1U-2362 POWER AMP UNIT

Ref. No.	Part No.	Part Name	Remarks
SEMICONDUCTOR GROUP			
IC501,502	262 0874 009	IC TLP521-1(BL)	
IC503,504	263 0743 007	IC NJM2082DD	
IC505,506	263 0711 000	IC M5218AP	
TR501~504	275 0055 015	Transistor 2SK184C(O)/(Y)	
TR505~508	273 0281 906	Transistor 2SC2705(O)/(Y)	
TR511~514	271 0202 002	Transistor 2SA1360(O/Y)	
TR515,516	273 0332 907	Transistor 2SC3334	
TR517,518	273 0380 001	Transistor 2SC4208A	
TR519,520	273 0317 906	Transistor 2SC2458(BL)	
TR521,522	273 0235 923	Transistor 2SC1841-T(E/F)	
TR523,524	275 0069 001	Transistor 2SK215	
TR525,526	275 0068 002	Transistor 2SJ78	
TR527,528	271 0256 003	Transistor 2SA1306A(O/Y)	
TR529,530	273 0407 007	Transistor 2SC3298A(O/Y)	
TR601,602	273 0332 907	Transistor 2SC3334	
TR603,604	271 0131 924	Transistor 2SA988-T (E/F)	
TR701,702	272 0107 906	Transistor 2SB1328(P)T105	
TR703,704	274 0151 903	Transistor 2SD2004(P)T105	
TR705	273 0235 923	Transistor 2SC1841-T(E/F)	
TR707,708	271 0131 924	Transistor 2SA988-T(E/F)	
D505	276 0432 903	Diode 1SS270A TE	
D507~510	276 0049 914	Diode 1S2076ATE	
D511~518	276 0548 910	Zener Diode DSM1D2	
D523~530	276 0432 903	Diode 1SS270A TE	
D531~534	276 0460 904	Zener Diode HZS5C-1TD	
D535~546	276 0432 903	Diode 1SS270A TE	
D581~588	276 0467 907	Zener Diode HZS9A-1TD	
D601~608	276 0432 903	Diode 1SS270A TE	
D701,702	276 0432 903	Diode 1SS270A TEB	
RESISTOR GROUP (Not included Carbon Film ±5% 1/4W type)			
R501,502	245 2116 906	Metallic Film 100K ohm 1/4W ±2%	RN14K2E104GT
R503,504	245 2060 900	Metallic Film 470 ohm 1/4W ±2%	RN14K2E471GT
R505,506	245 2044 900	Metallic Film 100 ohm 1/4W ±2%	RN14K2E101GT
R507~510	245 2076 907	Metallic Film 2.2K ohm 1/4W ±2%	RN14K2E222GT
R511~514	245 2052 905	Metallic Film 220 ohm 1/4W ±2%	RN14K2E221GT
R515,516	245 2090 909	Metallic Film 8.2K ohm 1/4W ±2%	RN14K2E822GT
R517~524	245 2104 905	Metallic Film 33K ohm 1/4W ±2%	RN14K2E333GT
R525~530	244 2052 973	Metallic Film 560 ohm 1W	RS14B3A561JST
R531	214 2378 904	Carbon (Non burn) 180 ohm 1/4W	RD14B2E181JNBST
R533,534	245 2084 902	Metallic Film 4.7K ohm 1/4W ±2%	RN14K2E472GT
R535~538	214 2376 922	Carbon (Non burn) 33 ohm 1/4W	RD14B2E330JNBST
R539,540	214 2379 961	Carbon (non burn) 820 ohm 1/4W	RD14B2E821JNBST
R541,542	214 2376 977	Carbon (non burn) 51 ohm 1/4W	RD14B2E510JNBST
R543~546	214 2387 940	Carbon (non burn) 4.7 ohm 1/4W	RD14B2E4R7JNBST
R547~550	214 2377 947	Carbon (non burn) 100 ohm 1/4W	RD14B2E101JNBST
R551,552	245 2106 903	Metallic Film 39K ohm 1/4W ±2%	RN14K2E393GT
R555,556	245 2096 903	Metallic Film 15K ohm 1/4W ±2%	RN14K2E153GT

Ref. No.	Part No.	Part Name	Remarks
R559~562	214 2387 908	Carbon (non burn) 1 ohm 1/4W	RD14B2E010JNBST
R583~586	214 2379 987	Carbon (non burn) 102 ohm 1/4W	RD14B2E102JNBST
R587~590	214 2376 964	Carbon (non burn) 47 ohm 1/4W	RD14B2E470JNBST
R591,592	244 2052 928	Metallic Film 47 ohm 1W	RS14B3A470JST
R593~596	245 2132 906	Metallic Film 470K ohm 1/4W±2%	RN14K2E474GT
R597,598	244 2052 928	Metallic Film 47 ohm 1W	RS14B3A470JST
R599~610	244 2051 987	Metallic Film 4.7 ohm 1W	RS14B3A4R7JST
R611~622	243 2039 029	Winding 0.22 ohm 5W	RW99=3HR22K
R627~632	244 2052 973	Metallic Film 560 ohm 1W	RS14B3A561JST
R633,634	244 2050 904	Metallic Film 22 ohm 1W	RS14B3A220JST
R635~638	245 2132 906	Metallic Film 470K ohm 1/4W±2%	RN14K2E474GT
R639,640	244 2052 973	Metallic Film 560 ohm 1W	RS14B3A561JST
R645~650	244 2052 973	Metallic Film 560 ohm 1W	RS14B3A561JST
R663,664	214 2377 947	Carbon (non burn) 100 ohm 1/4W	RD14B2E101JNBST
R665,666	214 2376 977	Carbon (non burn) 51 ohm 1/4W	RD14B2E510JNBST
R667,668	214 2377 947	Carbon (non burn) 100 ohm 1/4W	RD14B2E101JNBST
R669~672	214 2379 987	Carbon (non burn) 102 ohm 1/4W	RD14B2E102JNBST
R683~686	244 2051 990	Metallic Film 4.7K ohm 1W	RS14B3A822JST
R687~690	244 2051 903	Metallic Film 8.2K ohm 1W	RS14B3A822JST
R691,692	244 2050 904	Metallic Film 22 ohm 1W	RS14B3A220JST
R695~698	244 2051 903	Metallic Film 8.2K ohm 1W	RS14B3A822JST
VR501,502	211 6014 072	Variable 10K ohm	V09QB103
VR503,504	211 8005 005	Variable 47K ohm	V09QB473
CAPACITOR GROUP			
C501~504	255 6177 980	Film 220pF/50V	CQ09S1H221JT
C505,506	254 3056 959	Electrolytic 10μF/50V (Bipolar)	CE04D1H100MBPT
C507,508	253 4424 901	Ceramic 33pF/50V	CC45SL1H330JT
C509,510	255 6179 988	Film 0.01μF/50V	CQ09S1H103JT
C511,512	253 4538 907	Ceramic 68pF/50V	CC45SL1H680JT
C513,514	254 4260 980	Electrolytic 10μF/50V	CE04W1H100MT
C517,518	254 4260 980	Electrolytic 10μF/50V	CE04W1H100MT
C521,522	253 4486 907	Ceramic 47pF/500V	CC45SL2H470JT
C523,524	255 6177 948	Film 100pF/50V	CQ09S1H101JT
C525,526	255 6178 921	Film 470PF/50V	CQ09S1H471JT
C527,528	254 4263 987	Electrolytic 10μF/100V	CE04W2A100MT
C529,530	253 4470 900	Ceramic 10pF/500V	CC45SL2H100DT
C531,532	254 4260 949	Electrolytic 1μF/50V	CE04W1H010MT
C533~536	254 3046 901	Electrolytic 1μF/100V (Bipolar)	CE04D2A010MBPT
C537~540	254 4229 002	Electrolytic 470μF/100V	CE04W2A471M
C541,542	256 1042 903	Metalized 0.1μF/250V	CF93A2E104KT
C543~546	254 4260 980	Electrolytic 10μF/50V	CE04W1H100MT
C547,548	255 4199 973	Film 0.01μF/50V	CQ92M1H103JT
C549,550	254 4260 980	Electrolytic 10μF/50V	CE04W1H100MT
C551~554	255 6177 948	Film 100pF/50V	CQ09S1H101JT
C555~558	255 6177 980	Film 220pF/50V	CQ09S1H221JT
C559,560	253 4428 907	Ceramic 47pF/50V	CC45SL1H470JT
C561,562	254 4260 980	Electrolytic 10μF/50V	CE04W1H100MT
C567,568	255 4199 973	Film 0.01μF/50V	CQ92M1H103JT
C571,572	255 6179 988	Film 0.01μF/50V	CQ09S1H103JT
C573~576	254 3046 930	Electrolytic 10μF/100V (Bipolar)	CE04D2A100MBPT
C601~604	254 4260 993	Electrolytic 22μF/50V	CE04W1H220MT
C605,606	254 4261 918	Electrolytic 47μF/50V	CE04W1H470MT
C607~610	255 4199 973	Film 0.01μF/50V	CQ92M1H103JT
C701~704	254 4256 949	Electrolytic 100μF/25V	CE04W1E101MT

Ref. No.	Part No.	Part Name	Remarks
OTHER PARTS			
⚠F009~012	206 1015 090	FUSE (5A)	Europe, U.K., Australia
⚠F009~012	206 1046 027	FUSE (5A)	U.S.A. Canada
⚠F009~012	206 1035 012	FUSE (5A)	Multi-voltage
P501,502	214 0129 001	Posistor PTH487A01BD222TS	
	205 0233 032	3P EH CONNECTOR BASE	
	205 0233 087	8P EH CONNECTOR BASE	
	205 0275 003	10P EH CONNECTOR BASE	
	205 0653 036	3P VH CONNECTOR BASE	
	205 0343 032	3P CONNECTOR BASE (KR-PH)	

1U-2363 PROTECTOR UNIT

Ref. No.	Part No.	Part Name	Remarks
SEMICONDUCTOR GROUP			
TR201~213	273 0317 906	Transistor 2SC2458(BL)	
TR215	273 0317 906	Transistor 2SC2458(BL)	
TR217	271 0191 906	Transistor 2SA1048(GR)	
TR218	273 0317 906	Transistor 2SC2458(BL)	
TR219,220	269 0107 900	Transistor RN1241(A/B)	
TR222	273 0317 906	Transistor 2SC2458(BL)	
SC201	279 0016 904	Thyristor SF0R1A42	
D201~213	276 0432 903	Diode 1SS270A TE	
D215,216	276 0466 908	Zener Diode HZS7C-1TD	
D217	276 0477 900	Zener Diode HZS16-1TD	
D221~224	276 0553 905	Diode 1SR35-200A(T93X)	
D235	276 0432 903	Diode 1SS270A TE	
LD201~203	393 9506 902	LED SEL4117R(TP3)	
LD204	393 9506 915	LED SEL4917D(TP3)	
RESISTOR GROUP (not included Carbon Film ±5% 1/4W type)			
⚠R101,102	243 2079 021	Winding 33 ohm 10W	RW78A4A330K=(UL)
R247~249	244 2043 924	Metallic Film 68 ohm 1W	RS14B3A680JST(S)
VR501,502	211 0741 008	Variable 50K ohm	V1610V25FB503 (Europe Models Only)
CAPACITOR GROUP			
C101	253 8014 702	Ceramic 0.01μF/400VAC	CK45F2GAC103MC
C201,202	254 4260 951	Electrolytic 2.2μF/50V	CE04W1H2R2MT
C203	253 1151 905	Ceramic 0.0047μF/500V	CK45E2H472PT
C205	254 4260 935	Electrolytic 0.47μF/50V	CE04W1HR47MT
C205	254 4258 785	Electrolytic 470μF/35V	CE04W1V471MT
C206	254 4252 943	Electrolytic 220μF/10V	CE04W1A221MT
C207	254 4258 785	Electrolytic 470μF/35V	CE04W1V471MT
C208	254 4252 901	Electrolytic 22μF/10V	CE04W1A220MT
C209	254 4252 930	Electrolytic 100μF/10V	CE04W1A101MT
C210,211	254 4260 980	Electrolytic 10μF/50V	CE04W1H100MT
C212	254 4250 945	Electrolytic 330μF/6.3V	CE04W0J331MT
C213	254 4260 980	Electrolytic 10μF/50V	CE04W1H100MT
OTHER PARTS			
⚠F001	206 1036 011	FUSE (6.3A)	Europe, U.K., Australia
⚠F001	206 1051 009	FUSE (12A)	U.S.A. Canada
⚠F001	206 1064 009	FUSE (12A)	Multi-voltage
⚠F201,202	206 1015 016	FUSE (1.25A)	Europe, U.K., Australia
⚠F201,202	206 1039 047	FUSE (1.25A)	U.S.A. Canada
⚠F201,202	206 1035 025	FUSE (1.25A)	Multi-voltage
⚠SW101	212 9534 002	POWER SWITCH (PUSH) TV-8	
SW201,202	212 1076 005	2P PUSH SWITCH	
CN3F	205 0277 030	3P EH CONNECTOR BASE (RD)	
CN3G	205 0343 032	3P CONNECTOR BASE (KR-PH)	
CN3K	205 0233 032	3P EH CONNECTOR BASE	

Ref. No.	Part No.	Part Name	Remarks
	205 0343 045	4P CONNECTOR BASE (KR-PH)	
	205 0190 036	3P NH CONNECTOR BASE	
CN3A,3B	203 4842 009	3P VH-SDN CONNECTOR CORD	
CN3F	203 4817 034	3P EH-SCN CORD (RD)	
CN3G	203 4834 020	3P KR-DA CONNECTOR CORD	
CN3H	203 4834 033	3P KR-DA CONNECTOR CORD	
CN3K	203 4833 021	3P EH-SCN CONNECTOR CORD	
CN4	203 6374 038	4P KR-DA CONNECTOR CORD	
CN8	204 2451 013	8P EH-SCN CONNECTOR CORD	
CN10	204 2515 001	10P EH-SCN CONNECTOR CORD	

1U-2364 POWER SUPPLY UNIT

Ref. No.	Part No.	Part Name	Remarks
SEMICONDUCTOR GROUP			
D101,102	276 0424 005	Diode 4D4B42	
D231	276 0432 903	Diode 1SS270A TE	
D233	276 0432 903	Diode 1SS270A TE	
D236,237	276 0432 903	Diode 1SS270A TE	
RESISTOR GROUP (not included Carbon Film ±5% 1/4W type)			
R801,802	244 2043 937	Metallic Film 10 ohm 1W	RS14B3A100JST
R803,804	244 2051 987	Metallic Film 4.7 ohm 1W	RS14B3A4R7JST
R805~808	244 2050 904	Metallic Film 22 ohm 1W	RS14B3A220JST
R811,812	244 2051 987	Metallic Film 4.7 ohm 1W	RS14B3A4R7JST
CAPACITOR GROUP			
C103,104	256 1043 708	Metallized 0.22μF/250V	CF93B2E224K
C801,802	255 6179 988	Film 0.01μF/50V	CQ09S1H103JT
C803~806	255 6179 946	Film 0.0047μF/50V	CQ09S1H472JT
C807,808	255 6179 988	Film 0.01μF/50V	CQ09S1H103JT
OTHER PARTS			
⚠F005~F008	206 1036 011	FUSE (6.3A)	Europe, U.K., Australia
⚠F005~F008	206 1046 014	FUSE (8A)	U.S.A. Canada
⚠F005~F008	206 1052 008	FUSE (8A)	Multi-voltage
L801~804	235 0068 004	INDUCTOR (1mH)	
RL801~814	214 0129 001	RELAY (DH2TU)	
CN3I	203 4833 018	3P EH-SCN CONNECTOR CORD	
CN3J	203 4833 018	3P EH-SCN CONNECTOR CORD	
	205 0653 036	3P VH CONNECTOR BASE	

PACKING & ACCESSORIES

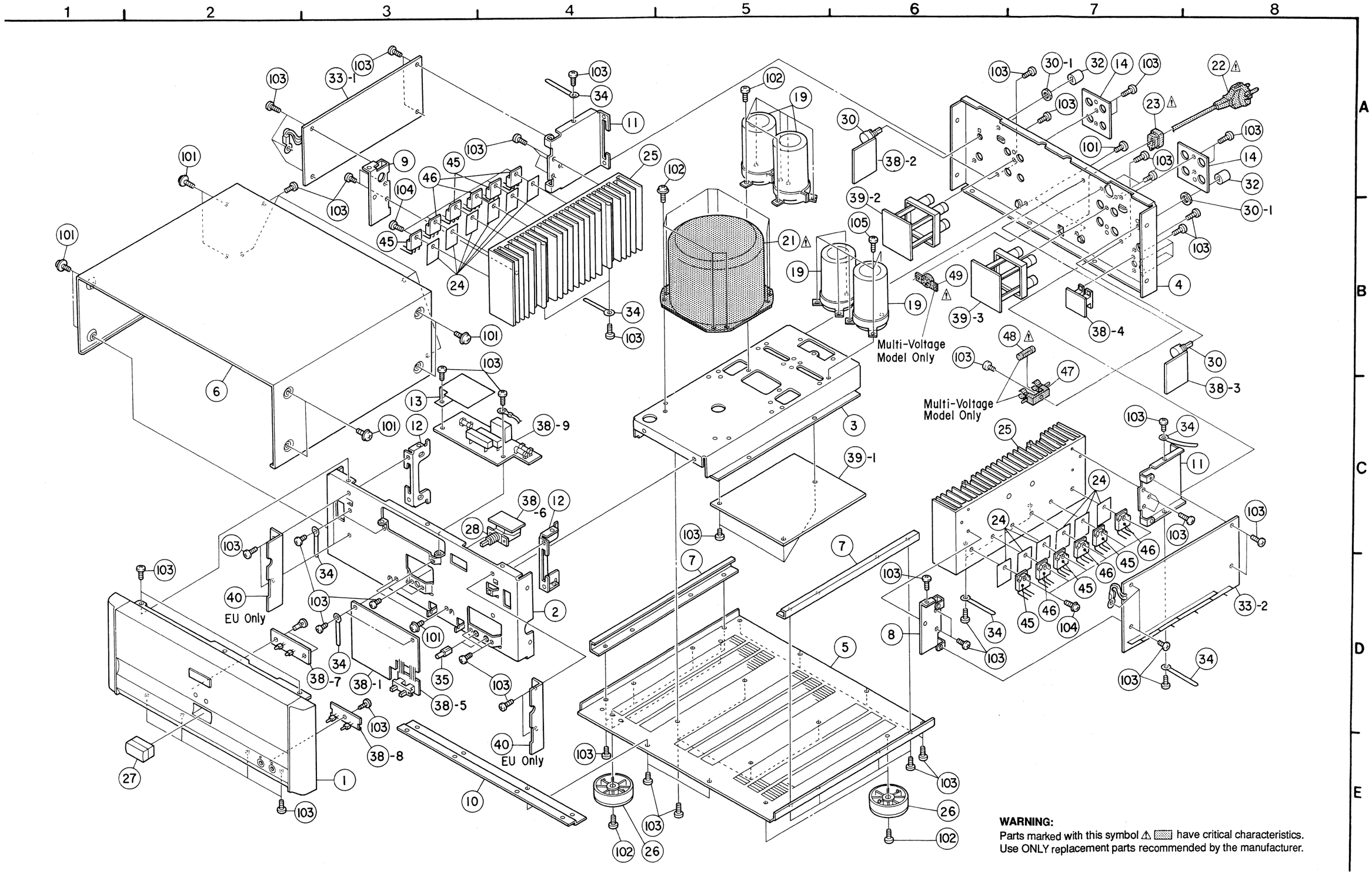
Ref. No.	Part No.	Part Name	Remarks	Q'ty
	504 9101 029	STYRENE PAPER		1
	505 0075 051	CABINET COVER		1
	503 9218 004	CUSHION ASS'Y		1
	501 1580 006	CARTON CASE		1
	505 8006 019	ENVELOPE		1
	511 2241 008	INST. MANUAL	Europe Canada	1
	511 2260 005	INST. MANUAL	U.S.A., Multi-voltage	1
	203 4442 001	REMOTE PLUG CORD		1

PARTS LIST OF EXPLODED VIEW

Ref. No.	Part No.	Part Name	Remarks
◉ 1	144 2173 206	FRONT PANEL ASS'Y	
◉	144 2173 222	FRONT PANEL ASS'Y	(Gold)
◉ 2	411 1142 002	FRONT CHASSIS	
◉ 3	411 1155 002	TRANS CHASSIS	
◉ 4	105 1012 004	BACK PANEL	Europe
◉	105 1012 017	BACK PANEL	U.S.A. Canada
◉	105 1012 020	BACK PANEL	Multi-Voltage
◉ 5	105 9116 106	BOTTOM COVER	
◉ 6	102 9016 016	TOP COVER	
◉	102 9016 029	TOP COVER	(Gold)
◉ 7	412 9081 207	SUPPORT BRACKET	
◉ 8	412 3464 105	P.W.B. BRACKET (R)	
◉ 9	412 3463 106	P.W.B. BRACKET (L)	
◉ 10	144 2178 007	PANEL BRACKET	
◉ 11	412 3437 006	RADIATOR BRACKET (REAR)	
◉ 12	412 3436 104	RADIATOR BRACKET (FRONT)	
◉ 13	415 0648 004	INSULATING COVER	
◉ 14	415 9014 105	PROTECTOR SHEET	
19	254 6165 009	ELECTROLYTIC CAPACITOR	CE68W==183M(DL)
⚠ 21	233 9559 000	POWER TRANS	Europe
⚠	233 9555 004	POWER TRANS	U.S.A. Canada
⚠	233 9558 001	POWER TRANS	Multi-Voltage
⚠ 22	206 2070 005	AC CORD (250V 6A C2)	Europe
⚠	206 2060 002	AC CORD (POLARIZED)	U.S.A. Canada
⚠	206 2083 005	AC CORD	Multi-Voltage
⚠ 23	445 0056 008	CORD BUSH	Europe
⚠	445 0020 005	CORD BUSH (4K-4)	U.S.A. Canada
⚠	445 0071 009	CORD BUSH	Multi-Voltage
◉ 24	415 0234 007	INSULATING SHEET	
25	417 0043 100	RADIATOR	
26	104 0195 000	FOOT	
27	113 9242 110	PUSH KNOB (P) ASS'Y	
	113 9242 107	PUSH KNOB (P) ASS'Y	(Gold)
⚠ 28	212 9534 002	POWER SW. (PUSH) TV-8	SW101
30	211 0741 008	INPUT VOLUME (V1610V25FB503)	Europe Only
30-1		NUT (ATTACHED TO INPUT VOLUME)	
32	112 0555 007	VOLUME KNOB (B)	Europe Only
◉ 33	1U-2362A	POWER AMP. UNIT	Europe
◉	1U-2362B	POWER AMP. UNIT	U.S.A. Canada
◉	1U-2362C	POWER AMP. UNIT	Multi-Voltage
◉ 33-1		POWER AMP. (L) UNIT	
◉ 33-2		POWER AMP. (R) UNIT	
⚠ 34	445 8004 007	WIRE CLAMPER	
⚠ 35	113 1356 004	PUSH KNOB (MARU)	
	113 1356 062	PUSH KNOB (MARU)	(Gold)
◉ 38	1U-2363A	PROTECTOR UNIT	Europe
◉	1U-2363B	PROTECTOR UNIT	U.S.A. Canada
◉	1U-2363C	PROTECTOR UNIT	Multi-Voltage
◉ 38-1		PROTECTOR UNIT	
◉ 38-2		INPUT VOL. (L) UNIT	
◉ 38-3		INPUT VOL. (R) UNIT	
◉ 38-4		DC REMOTE JACK UNIT	
◉ 38-5		SPEAKER SW. UNIT	
◉ 38-6		POWER SW. UNIT	
◉ 38-7		POWER LED UNIT	
◉ 38-8		SPEAKER LED UNIT	
◉ 38-9		AC UNIT	
◉ 39	1U-2364A	SUPPLY & SPEAKER UNIT	Europe
◉	1U-2364B	SUPPLY & SPEAKER UNIT	U.S.A. Canada
◉	1U-2364C	SUPPLY & SPEAKER UNIT	Multi-voltage
◉ 39-1		SUPPLY UNIT	
◉ 39-2		SPEAKER (L) UNIT	
◉ 39-3		SPEAKER (R) UNIT	
◉ 40	412 3510 001	UL BRACKET	U.S.A. Only
45	273 0401 003	Transistor 2SC3856 (O/P/Y)(Z)	
46	271 0251 008	Transistor 2SA1492 (O/P/Y)(Z)	
⚠ 47	202 0013 101	FUSE holder	Multi-voltage Only
⚠ 48	206 1061 057	FUSE (6.3A) F2	Multi-voltage Only
⚠ 49	212 9555 005	VOLTAGE SEL SWITCH	Multi-voltage Only
101	477 0263 005	3P. SWELLING SCREW	
	477 0263 018	3P. SWELLING SCREW	(Gold)
102	473 7004 003	4 × 8 CBTS(S)-Z SCREW	
103	473 7015 018	3 × 8 CBTS(S)-B SCREW	
104	473 8007 009	3 × 12 CUP SCREW	

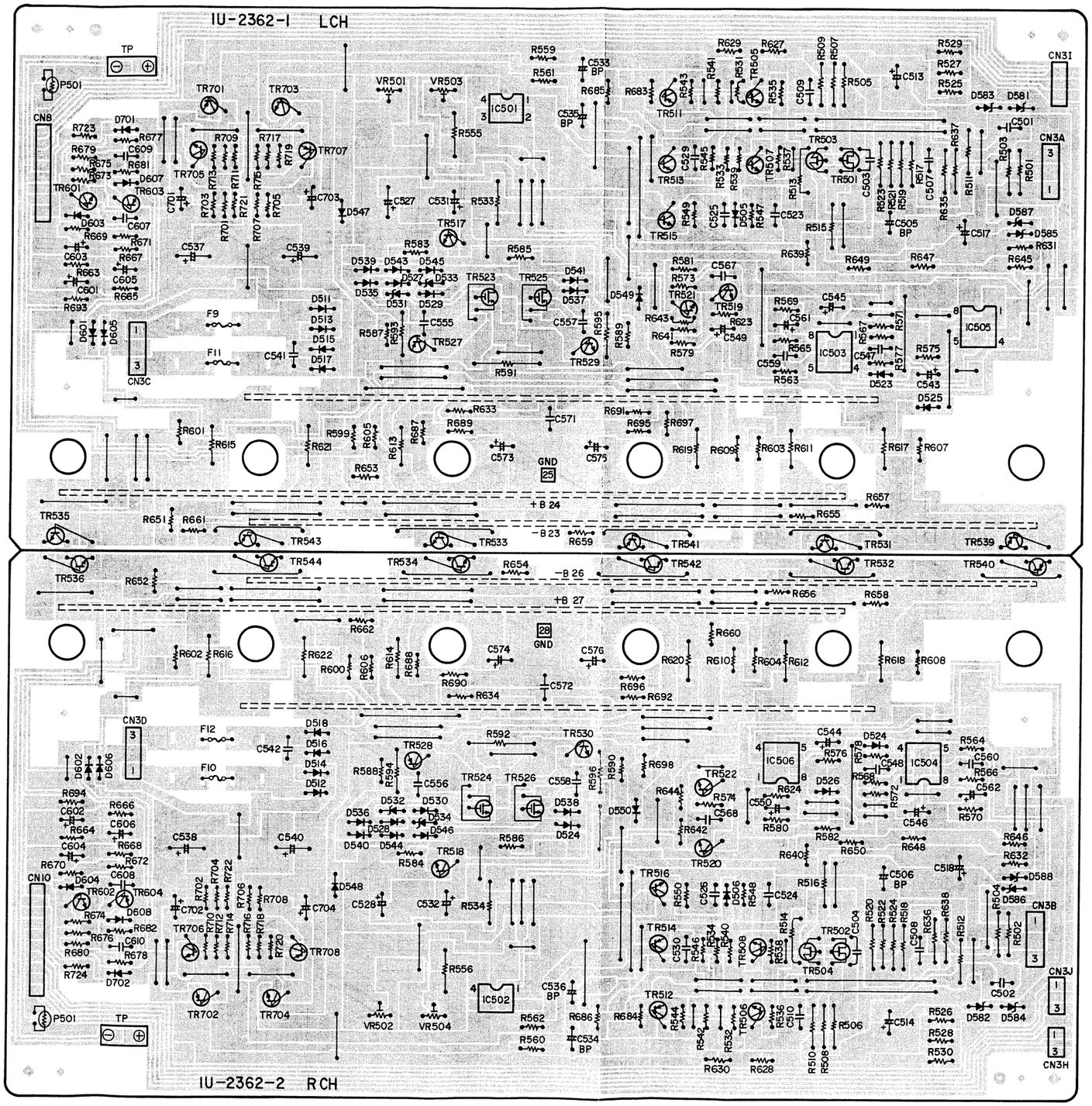
• (Gold) in the Remarks column refers with gold front panels.

EXPLODED VIEW

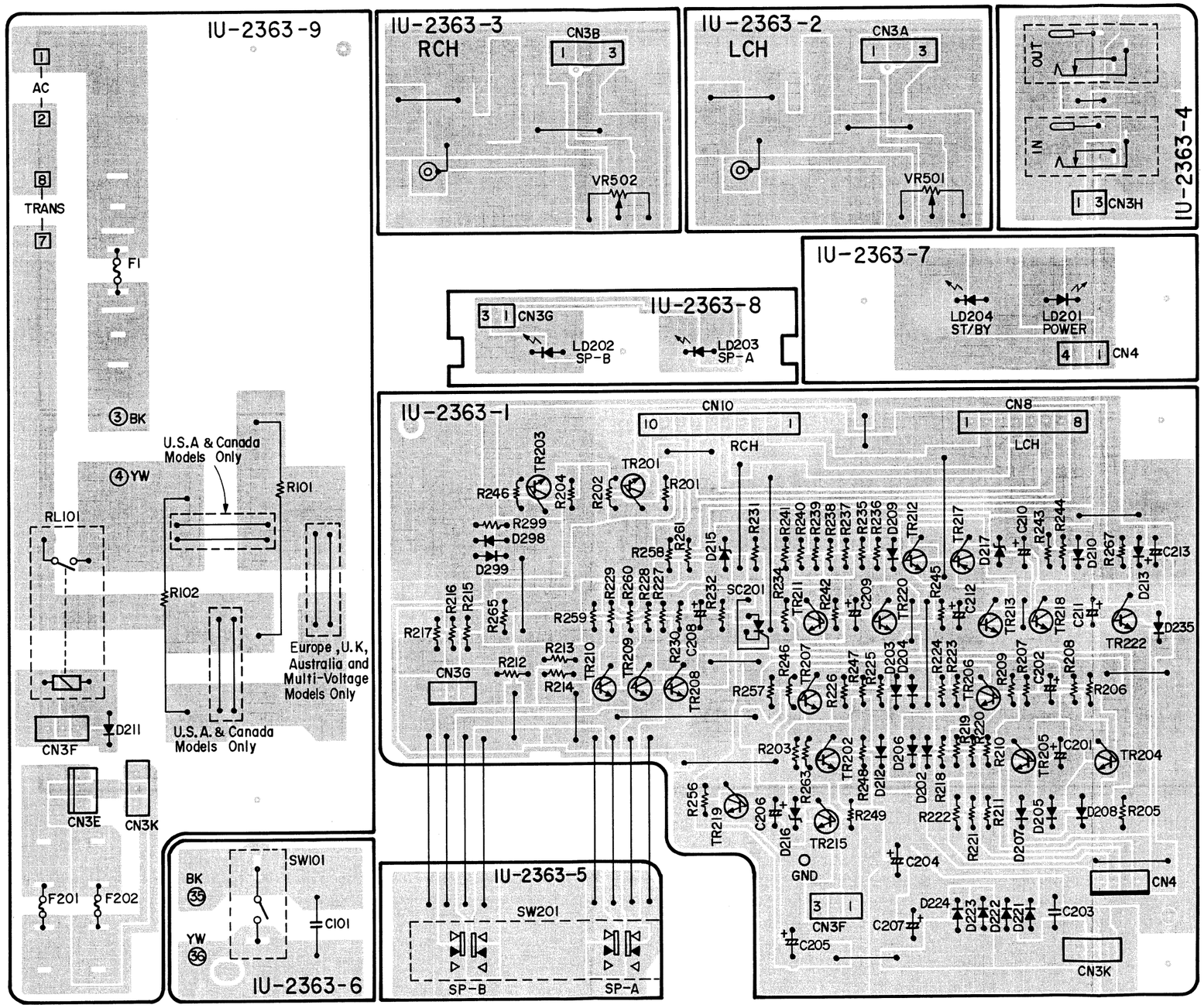


WARNING:
Parts marked with this symbol ⚠ ▨ have critical characteristics.
Use ONLY replacement parts recommended by the manufacturer.

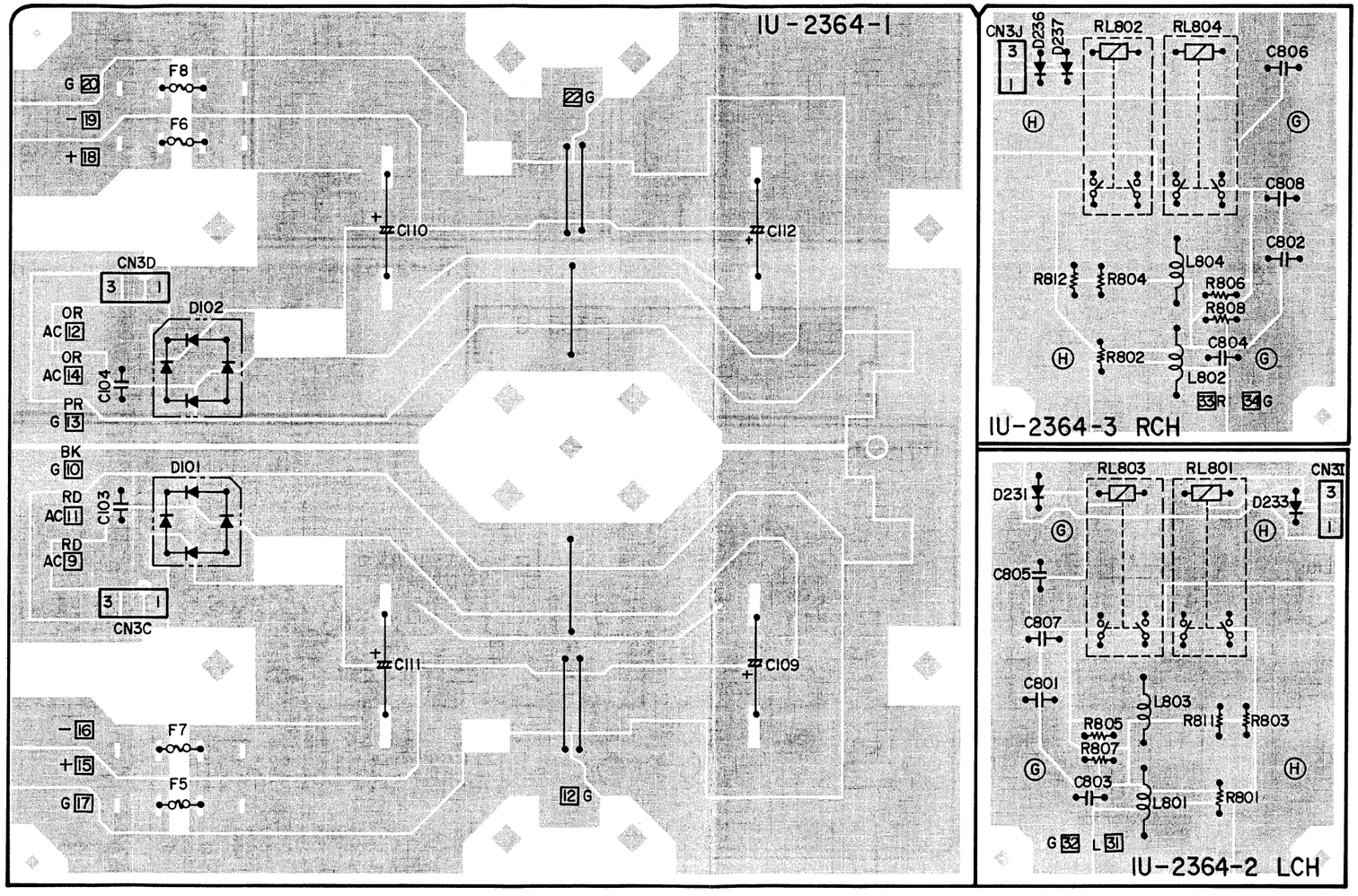
P.W. BOARD OF 1U-2362 POWER AMP UNIT



P.W. BOARD OF 1U-2363 PROTECTOR UNIT



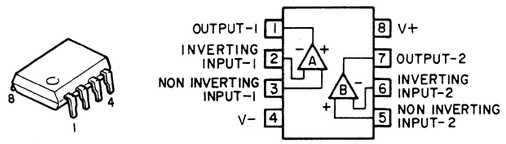
P.W. BOARD OF 1U-2364 POWER SUPPLY UNIT



SEMICONDUCTORS

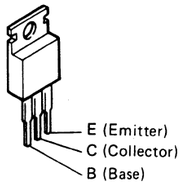
• IC

NJM-2082DD
M-5218P

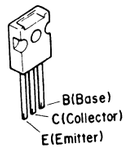


• Transistors

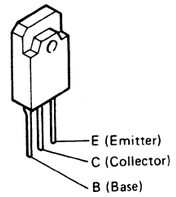
2SC2336A (Q)/(P)
2SA1006A (Q/P)



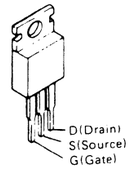
2SA1360 (O/Y)



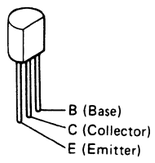
2SA1492LB(O/P/Y)
2SA3856LB(O/P/Y)



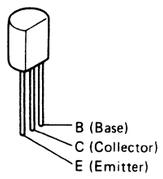
2SJ78
2SK215



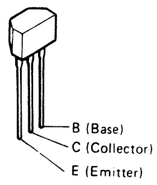
2SC1841 (B/F)
2SA988 (E/F)



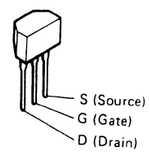
2SC2705 (O/Y)
2SC3334



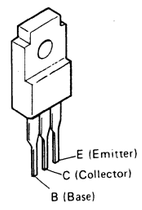
2SC2458 (BL)
RN1241



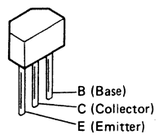
2SK184C (Y/GR/BL)



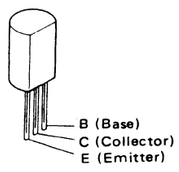
2SC3298A (O/Y)
2SA1306A(O/Y)



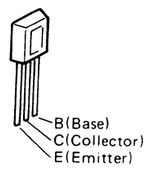
2SC2458A (BL)
2SA1048 (GR)



2SC4208A
2SC2705 (O/Y)

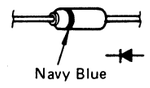


2SB1328(P)
2SD2004(P)

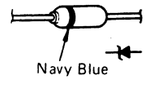


• Diodes (included LED)

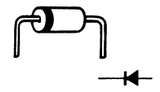
1S2076A
1SS270A



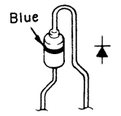
HZS-5C-1 HZS-9A-1
HZS-7C-1 HZS-16-1



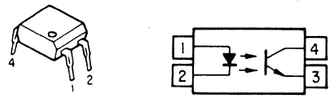
DSM1A2 (type-2)



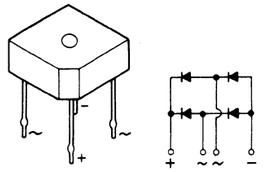
1SR35-200A



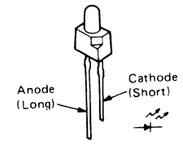
TLP-521-1 (BL)



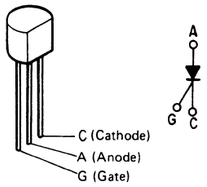
4D4B42 (LCI)



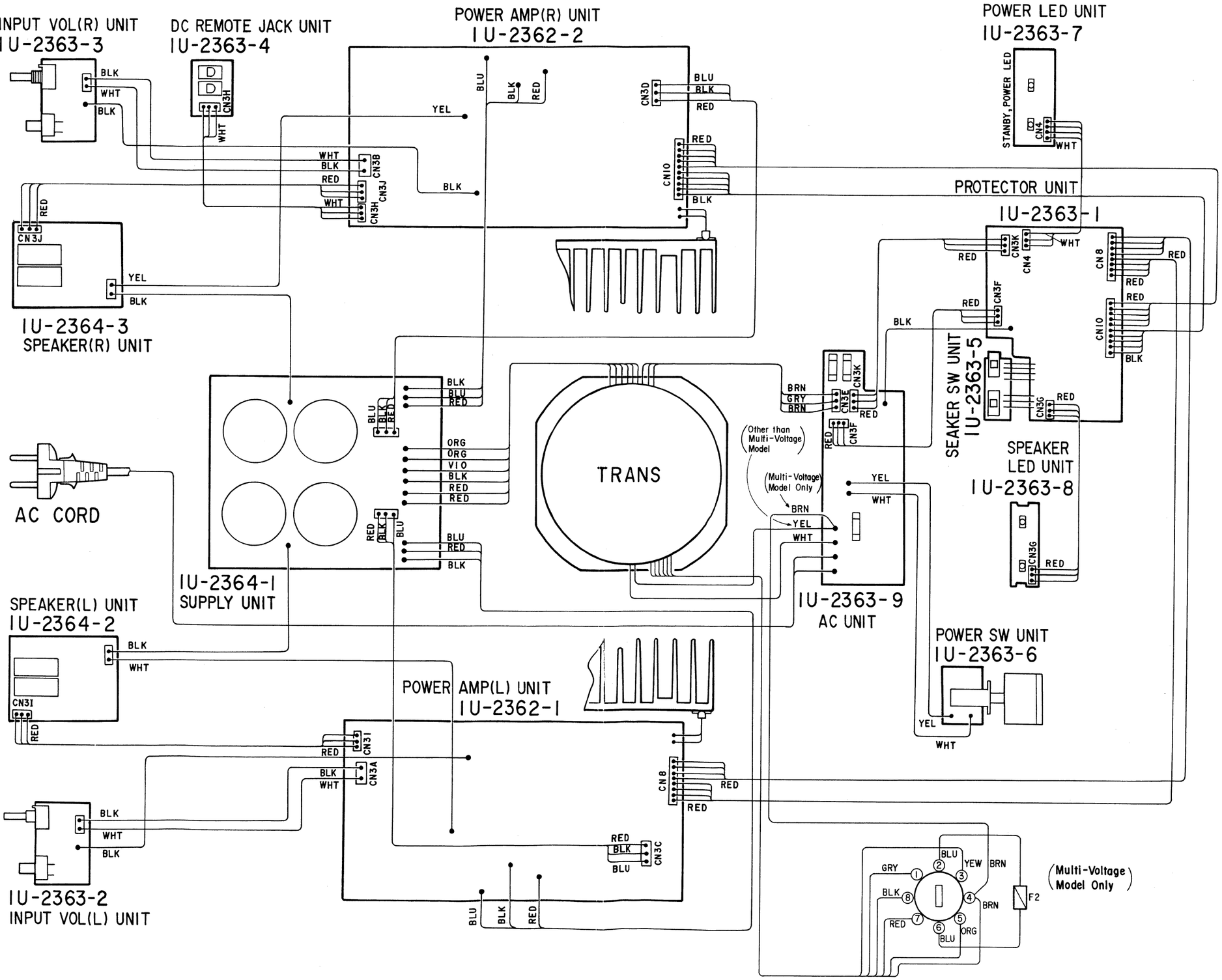
SEL4117RT(RED)
SEL-4918DT(ORG)



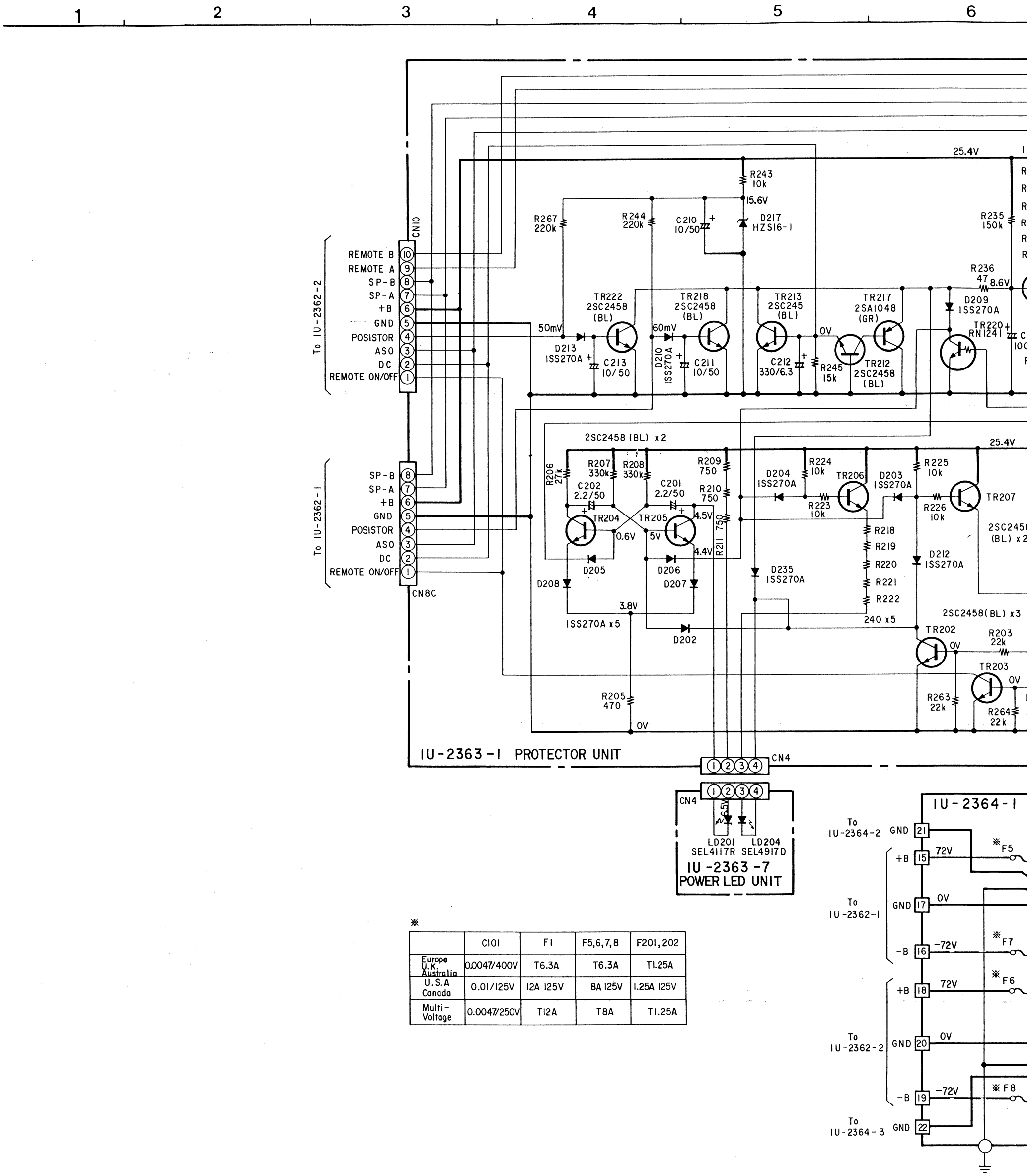
SFOR1A42
Thyristor



WIRING DIAGRAM



SCHEMATIC DIAGRAM



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	C101	F1	F5,6,7,8	F201,202
Europe U.K. Australia	0.0047/400V	T6.3A	T6.3A	T1.25A
U.S.A Canada	0.01/125V	12A 125V	8A 125V	1.25A 125V
Multi-Voltage	0.0047/250V	T12A	T8A	T1.25A

NOTES

ALL RESISTANCE VALUES IN OHM. k=1,000 OHM, M=1,000,000 OHM
ALL CAPACITANCE VALUES IN MICRO FARAD. P=MICRO-MICRO FARAD
EACH VOLTAGE AND CURRENT ARE MEASURED AT NO SIGNAL INPUT CON
CIRCUIT AND PARTS ARE SUBJECT TO CHANGE WITHOUT PRIOR NOTICE.

WARNING:

Parts marked with this symbol ⚠ ▒▒ have critical characteristics.
Use ONLY replacement parts recommended by the manufacturer.

CAUTION:

Before returning the unit to the customer, make sure you make either (1) a leakage
the leakage current exceeds 0.5 milliamps, or if the resistance from chassis to eithe
defective.

WARNING:

DO NOT return the unit to the customer until the problem is located and corrected.

6 7 8 9 10 11

A B C D E F G H

25.4V
1k x6
R237
R238
R239
R240
R241
R242
R235 150k
R236 47
8.6V
TR211
D209 ISS270A
TR220 RN1241
C209 100/10
R234 150k
R232 1k
C208 22/10
R231 47
8V
D215 HZS7C-1
SC201
R230 470k
SC201 SFORIA42
TR211 2SC2458 (BL)
R258
R261
R259
R260
33 (NB) x4
R229 3.3k
0.6V
0.1V
TR210
R228 3.3k
R227 3.3k
0.6V
2SC2458 (BL) x3
0.1V
TR209
0.1V
0.6V
TR208
R246 10k
TR219 RN1241
8V
TR215 2SC2458 (BL) 0.1V
0.6V
D216 HZS7C-1
C206 220/10
68(1W) x3
R247 R248 R249
CN3F
ISR-35-200A x4
25.4V
D221
D222
R257 33k
C207 470/35
C204 470/35
C203 0.0047/500
CN3K
C205 0.47/50
D223
D224
-7.7V
R256 15k
-22.7V
D298,299 ISS270A
D298
R299 10k
D299
25.4V
TR207
2SC2458 (BL) x2
2SC2458(BL) x3
R202
R203 22k
R265 22k
TR203
TR201
R201 10k
R204 22k
R264 22k
R202 10k
0V
IU-2363-5 SPEAKER SW. UNIT
SW201 SP-A OFF ON
SW202 SP-B OFF ON
R212 R215
R213 R216
R214 R217
820 x6
CN3G
IU-2363-8 SPEAKER LED UNIT
2V
0V
LD202
LD203
SEL4117R x2
IU-2363-9
R102 33(10W)
R101 33(10W)
Europe, U.K., Australia and Multi-Voltage Models
IU-2263-6 POWER SW. UNIT
SW101
C101
IU-2364-1 SUPPLY UNIT
D101 4D4B42
C103 0.1/250
F5
C109 18000/85
C111 18000/85
F7
D102 4D4B42
C104 0.1/250
F6
C110 18000/85
C112 18000/85
F8
72V
0V
-72V
RED
BLK
RED
ORG
PUR
ORG
YEL
WHT
CN3C
CN3D
To IU-2362-1
To IU-2362-2
IU-2363-9 AC UNIT
R101 33 (10W)
R102 33 (10W)
U.S.A. & Canada Models
F1
240V 50Hz (U.K. & Australia Models)
220V 50Hz (Europe Models)
120V 60Hz (U.S.A. & Canada Models)
110V/120V/220V/240V 50/60Hz (Multi-Voltage Models)
D211 ISS270A
CN3F 12V
RL 101
D211
F201
F202
CN3E
CN3K
BRN
GRY
BRN
NOTE :
+B LINE
-B LINE
BRN 120V
RED 10V
GRY 0V
ORG 120V
YEW 110V
BLK 0V
0V
VOLTAGE SELECTOR
BLU
BLU
F2
6.3A
WHT
Multi-Voltage Models Only

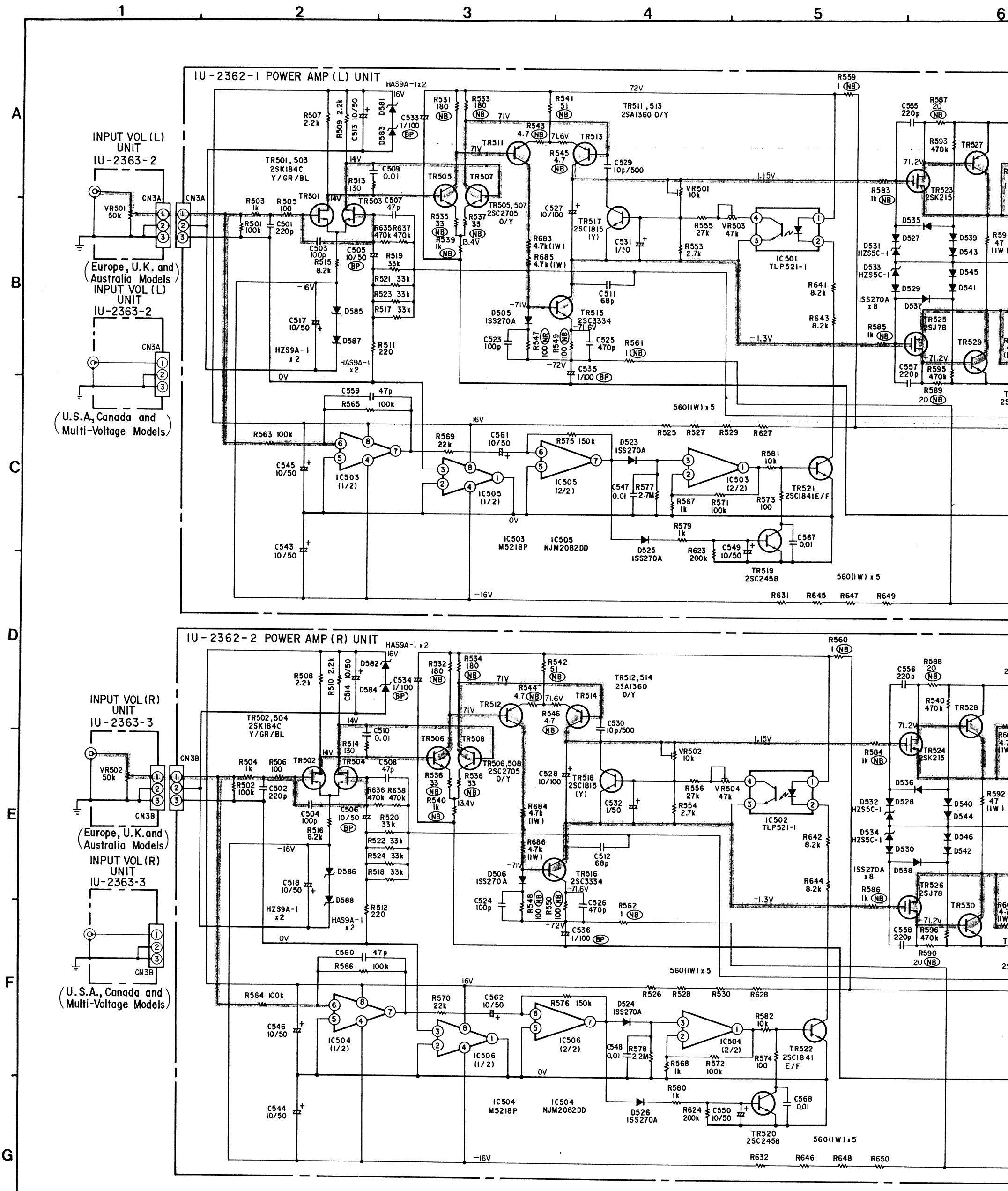
00,000 OHM
-MICRO FARAD
SIGNAL INPUT CONDITION.
UT PRIOR NOTICE.

istics.
urer.

e either (1) a leakage current check or (2) a line to chassis resistance check. If
from chassis to either side of the power cord is less than 240 kohms, the unit is

cated and corrected.

SCHEMATIC DIAGRAM



WARNING:
Parts marked with this symbol ⚠ ▨ have critical characteristics.
Use ONLY replacement parts recommended by the manufacturer.

CAUTION:
Before returning the unit to the customer, make sure you make either (1) a leakage current check or (2) a line to chassis resistance check. If the leakage current exceeds 0.5 milliamps, or if the resistance from chassis to either side of the power cord is less than 240 kohms, the unit is defective.

WARNING:
DO NOT return the unit to the customer until the problem is located and corrected.

NOTES
ALL RESISTANCE VALUES IN OHM. k=1,000 OHM, M=1,000,000 O
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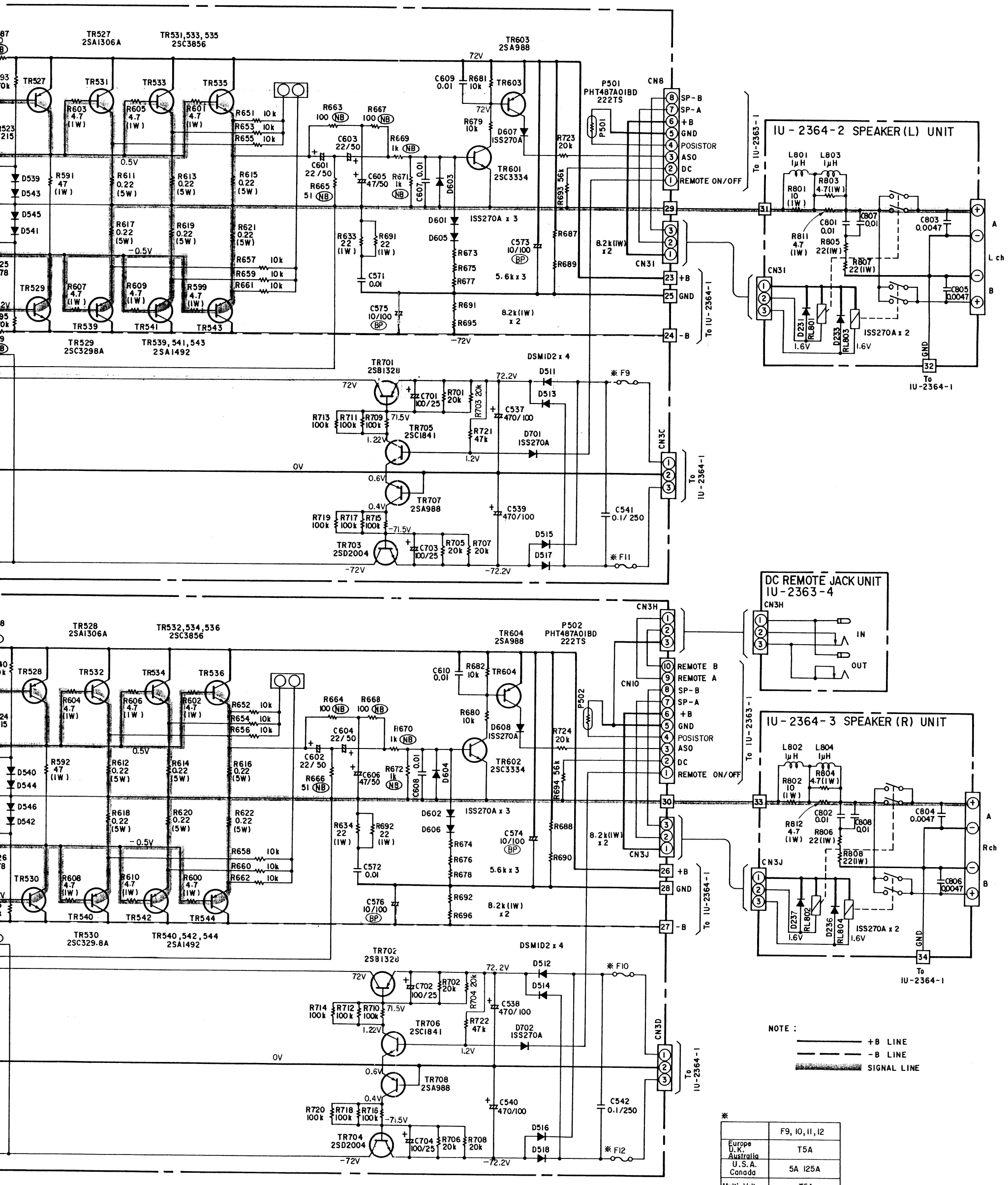

NOTE :

+B LINE

-B LINE

SIGNAL LINE

※

	F9, 10, 11, 12
Europe U.K. Australia	T5A
U.S.A. Canada	5A 125A
Multi-Voltage	T5A

M, M=1,000,000 OHM
=MICRO-MICRO FARAD
D AT NO SIGNAL INPUT CONDITION.
E WITHOUT PRIOR NOTICE.